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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/717,107	11/19/2003	Bin Lu	SEAG 63455	7319

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EXAMINER	
FALASCO, LOUIS V	
ART UNIT	**PAPER NUMBER**
1773	

DATE MAILED: 04/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/717,107	LU ET AL.	
	Examiner	Art Unit	
	Louis Falasco	1773	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *1/24/05*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) *9-18* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8, 19 and 20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *11/19/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

PAPERS RECEIVED

Applicants Election received January 24, 2005 is acknowledged.

CLAIMS

The claims are 1 to 20.

Applicants election of the invention in claims 1-8, 19 and 20 without traverse is acknowledged. Non-elected claims 9-18 are with drawn from consideration.

The claims under consideration are: 1-8, 19 and 20.

DETAILED ACTION

Statutory Basis

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Rejections

1. Claims 19 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The exchange coupling claimed requires a magnetic grains separated by an oxide; as evident from the disclosure, paragraph 0025 or Fig. 4. Claims 19 and 20 do not include a magnetic grains separated by an oxide. *Solomon v. Kimberly-Clark Corp.*, 216 F.3d 1372, 55 USPQ2d 1279 (Fed. Cir. 2000); *In re Prater*, 415 F.2d 1393, 162 USPQ 541 (CCPA 1969).

1. Claims 1 to 8, 19 and 20 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over **Yusu et al** (US 6174597).

Yusu et al teaches the claimed subject matter to have been known in the art or at least obvious at the time of the invention.

Yusu et al teaches the structural requirements of the claims including an annealed magnetic thin film over a substrate (see col. 1 lns 61-64; col. 2 lns 7, 8, col. 9 lns 34-37 and annealing as in col. 29 lns 52,53 and the examples, e.g., Examples 6A). In **Yusu et al** the thin film includes magnetic grains in an oxide - see col. 2 lns 18-20 and illustrated for example in Fig. 7 
FIG. 7 . The specific degree of exchange coupling between grains is controlled by the optimizing the distances between magnetic grains within the oxide through controlling 'packing' of the grains in the oxide this is pointed out in **Yusu et al** col. 8 lns 56, 57; col. 12 lns 45-50, col. 11 lns 19-23.

- As to the limitations in claim 2 and 3 see **Yusu et al** examples 6 and 9 i.e., 6A and 9F
- As to the limitations in claim 4 see **Yusu et al** col. 4 lns 12-14 and col. 29 lns 11, 12
- As to the limitations in claim 5 – see col. 8 ln 67 grain size adjustments see adjustment ed packing [packing ratio= $2\pi a^2/3^{(1/2)}(2a+b)^2$]
- As to the limitations in claims 19 and 20: though not limited to oxide, "comprising" does not precluding additional elements or benefits such as from the coupling in **Yusu et al**. See, e.g., *Invitrogen Corp. v. Biocrest Mfg.*, L.P., 327 F.3d 1364, 1368, 66 USPQ2d 1631, 1634 (Fed. Cir. 2003); *Moleculon Research Corp. v. CBS, Inc.*, 793 F.2d 1261, 229 USPQ 805 (Fed. Cir. 1986); *In re Baxter*, 656 F.2d 679, 686, 210 USPQ 795, 803 (CCPA 1981); *Ex parte Davis*, 80 USPQ 448, 450 (Bd. App. 1948).

Alternate to anticipation by **Yusu et al** the subject of these claims are considered at least obvious since they have been shown identical or substantially identical in

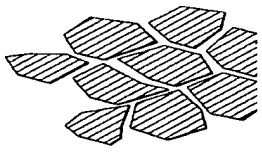
structure, composition and are produced by a nearly identical processes. Where a case of anticipation or a prima facie case of obviousness has been established, the burden of proof then shifts to the applicant to show the prior art products do not necessary or inherently posses the characteristic of a claimed product whether based upon "inherency" under 35 USC 102 or prima facie obviousness under 35 USC 103 jointly or alternately. *In re Best 562 F2d 1252, 1255, 195 USP 430, 433 (CCPA 1977); In re Ludke, 58 CCPA 1159, 441 F2d at 212-13, 169 USPQ 563 (1971); In re Brown, 59 CCPA 1036, 459 F. 2d 531, 173 USPQ 685 (1972).*

As regard the instant examples illustrated by the steep loop in Figs 5 to 8 through higher temperature annealing: these conditions adjustments are taught in the prior art as a matter of routine optimization; **Yusu et al** points out that degree of exchange coupling between grains is controlled by the optimizing the distances between magnetic grains within the oxide through controlling 'packing' of the grains in the oxide (col. 8 lns 56, 57, col. 12 lns 45-50, col. 11 lns 19-23). In addition the claims are not commensurate in scope with the subject matter being claimed. The instant product claims do not include the *M/Ms*, the Alpha (α) measurements for the Fields and Temperatures. *In re Kulling*, 897 F.2d 1147, 1149, 14 USPQ2d 1056, 1058 (Fed. Cir. 1990); *In re Grasselli*, 713 F.2d 731, 743, 218 USPQ 769, 777 (Fed. Cir. 1983). *In re Soni*, 54 F.3d 746, 34 USPQ2d 1684 (Fed. Cir. 1995). The range and numbers of samples are also too narrow and few to ascertain a trend reasonably extend the probative value required for what has been claimed nor is there the requisite evidence of superior properties

necessary to establish the non-obviousness of instant broadly claimed invention, especially for claims 8, 19 and 20 where the claims are not even limited to the oxide. In re *Clemens*, 622 F.2d 1029, 1036, 206 USPQ 289, 296 (CCPA 1980); *Grasselli*, 713 F.2d at 743, 218 USPQ at 778. Moreover it has been demonstrated that the structure claimed would be identical or only slightly different from **Yusu et al** structures; the burden of persuasion is on applicants to show that the claimed product exhibited unexpected properties compared with that of the prior art *Ex parte Gray*, 10 USPQ2d 1922 (Bd. Pat. App. & Inter. 1989).

2. Claims 1 to 8, 19 and 20 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as being unpatentable over **Kikitsu et al** (US 6830824).

Kikitsu et al teaches the claimed subject matter to have been known in the art to have been at least obvious, at the time of invention. **Kikitsu et al** teaches magnetic recording medium including an annealed thin magnetic film above a substrate as illustrated in Figs. 1 and 5. In **Kikitsu et al** the annealed thin film layer has islands of magnetic alloy surrounded in an oxide see col. 49 lns 32-37, and for instance example 13 and as



illustrated in Fig. 48 FIG. 48 . The thin magnetic film is an annealed

product (paragraph bridging col. 43 and 44) where the amount of exchange coupling is optimized by annealing for most favorable the space between magnetic grains as set forth at col. 25 lns 45 - 51 while tailoring the media to recoding/playback to a system requirement (col. 40 lns 26-29).

As to the limitations in claim 2, 3 and 5: though **Kikitsu et al** does not specify the annealing times, these would have been either the same or only a slightly different product see **Kikitsu et al** examples 6, 7, 11 and 9 i.e., 6A and 9F. T. In any case determination of patentability is based on the product itself not the process in product claims *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). When a sound basis is demonstrated for products of the applicant and the prior art being the same, the applicant has the burden of showing that they are not. *In re Spada 911 F 2d 705, 709, 15 USPQ 2d 1655 Fed. Cir. 1990.*

- As to the limitations in claim 4 see **Kikitsu et al** col. 8 lns 55-64, col. 43 lns 48-56, example 14

In considering in considering instant examples illustrated by the steep loop in Figs 5 to 8 through higher temperature annealing: these conditions adjustments are taught in the prior art as at least a matter of routine optimization in **Kikitsu et al** where the thin magnetic film is an annealed product (paragraph bridging col. 43 and 44) and exchange coupling optimized by controlling space between magnetic grains, col. 25 lns 45 - 51, tailoring the media to the system requirements (col. 40 lns 26-29). In addition the claims are not commensurate in scope with the subject matter being claimed. The

instant product claims do not include the *M/Ms*, the Alpha (α) measurements for the Fields and Temperatures. *In re Kulling*, 897 F.2d 1147, 1149, 14 USPQ2d 1056, 1058 (Fed. Cir. 1990); *In re Grasselli*, 713 F.2d 731, 743, 218 USPQ 769, 777 (Fed. Cir. 1983). *In re Soni*, 54 F.3d 746, 34 USPQ2d 1684 (Fed. Cir. 1995). The range and numbers of samples are also too narrow and few to ascertain a trend reasonably extend the probative value required for what has been claimed nor is there the requisite evidence of superior properties necessary to establish the non-obviousness of instant broadly claimed invention, especially for claims 8, 19 and 20 where the oxide is not even claimed. In re *Clemens*, 622 F.2d 1029, 1036, 206 USPQ 289, 296 (CCPA 1980); *Grasselli*, 713 F.2d at 743, 218 USPQ at 778. It has been demonstrated in the instant case that the structure claimed would be identical or only slightly different from **Kikitsu et al** structures; the burden of persuasion is on applicants to show that the claimed product exhibited unexpected properties compared with that of the prior art *Ex parte Gray*, 10 USPQ2d 1922 (Bd. Pat. App. & Inter. 1989).

DOUBLE PATENTING

Basis

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent

and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Rejections

3. Claims 1, 4 to 8, 19 and 20 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 - 4, 6, 15, 16 and 25 of **Van de Veerdonk et al** copending Application No. 10337103 (corresponding to Pre-grant publication 2003/0235717).

This is a provisional obviousness-type double patenting rejection.

Instant claims 1, 4 to 8, 19 and 20 are not patentably distinct from the invention claimed in **Van de Veerdonk et al**. **Van de Veerdonk et al** claims a substrate and an annealed thin film (**Van de Veerdonk et al** dependent claim 25) having magnetic material (**Van de Veerdonk et al** dependent claims 2, 4, 6, 16) and an oxide material

(**Van de Veerdonk et al** dependent claim 3) the annealed thin film, layer affects the exchange coupling between grains of the magnetic layer, as evident from paragraph [0023] where the oxide causes polarization and forms immiscible systems of oxide and magnetic grains created in the claimed magnetic recording media - see paragraph [0031].

The instant claims, though differing in breadth from **Van de Veerdonk et al** have not been deemed patentable distinguished over species claims set for in **Van de Veerdonk et al**. *In re Goodman*, (CAFC) 29 USPQ2d 2010.

4. Claims 2 and 3 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-4, 6, 15, 16 and 25 of **Van de Veerdonk et al** copending Application No. 10337103 (corresponding to Pre-grant publication 2003/0235717) in view of **Park** (*Effects of Annealing Conditions on the Structure Magnetic Properties of* ***FePt*** *Thin Films*).

This is a provisional obviousness-type double patenting rejection.

Instant claims 2 and 3 are not patentably distinct from the claimed invention of **Van de Veerdonk et al** when taken with **Park**. While **Van de Veerdonk et al** claims a product of annealing, **Van de Veerdonk et al** does not claim the product times of claims

2 and 3. However, **Park** demonstrates the variation of annealing time with the consequent variation of coercivity as evident in Fig. 1.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to adopt the variation of annealing time such as shown by **Park** in recording media of **Van de Veerdonk et al** for the purpose of controlling media coercivity. The worker of ordinary skill would have been motivated to adopt **Park** with the expectation of adjustment of coercivity with record/ play back system requirements (as in **Park** page- -3035- paragraph bridging col. 1 and 2).

Other References

Lu et al (US 2004/0072027 is cited as being of interest as a further showing oxide in magnetic layer.

Saito et al (US 6153062) is cited as being of interest as a further teaching the annealing step to develop perpendicular magnetic properties in magnetic layer.

CONCLUSION

The claims are 1 to 20.

- Restriction had been required and claims 9 to 18 have been withdrawn from consideration.
- Claims 1 to 8, 19 and 20 have been considered.
- No claim has been allowed.
- The Information Disclosure Statement has been considered.

INQUIRES

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Louis Falasco, PhD whose telephone number is (571)272-1507. The examiner can normally be reached on M-F 10:30 - 7:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol D. Chaney, PhD can be reached at (571)272-1284. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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STEVAN A. RESAN
PRIMARY EXAMINER